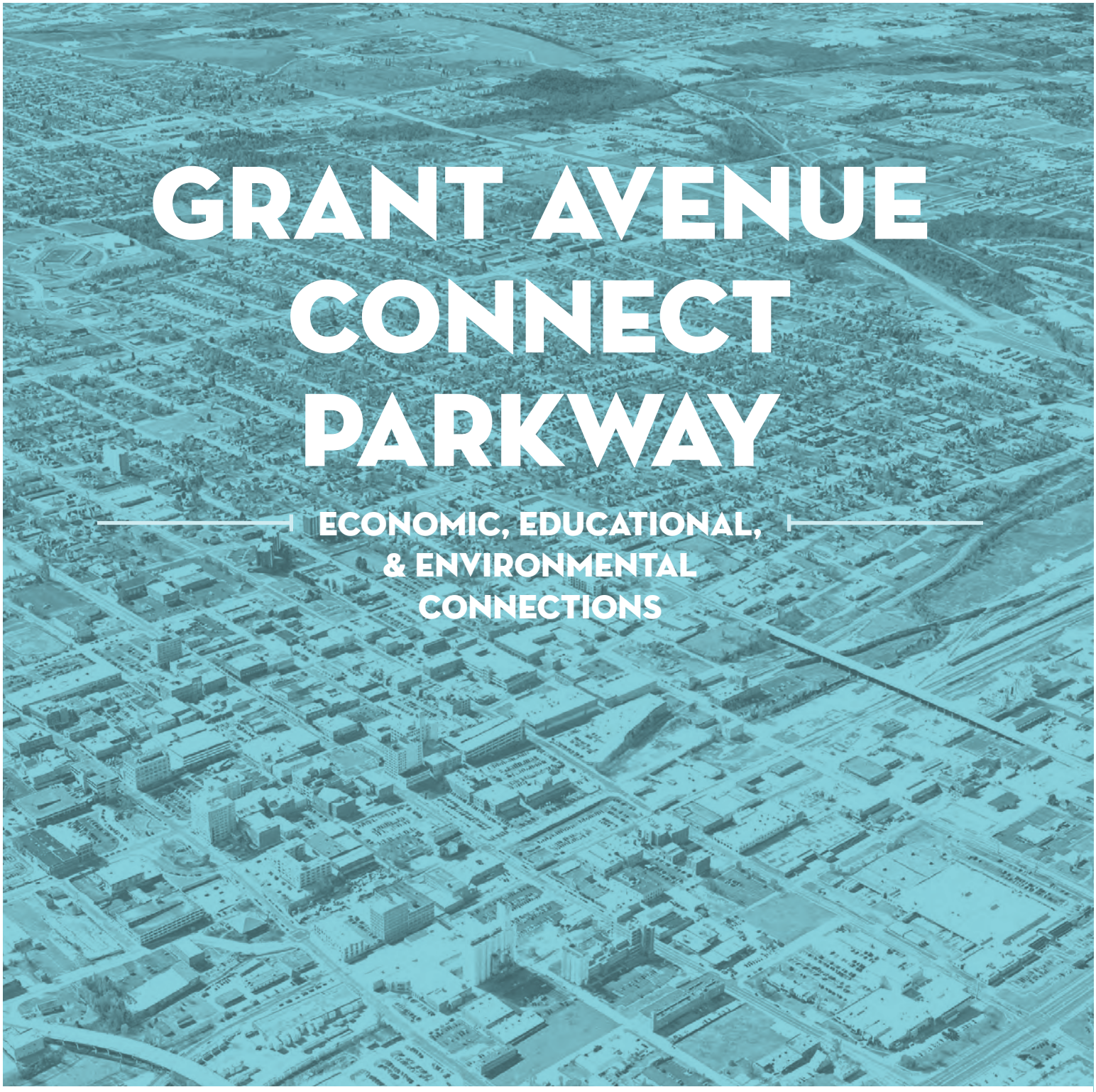


GRANT AVENUE CONNECT PARKWAY

ECONOMIC, EDUCATIONAL, & ENVIRONMENTAL CONNECTIONS

CITY OF Springfield

GRANT: BUILD I (FY 2018)
LOCATION: Springfield, MO
PROJECT APPLICANT: City of Springfield
DUNS NUMBER: 0068522550000
GRANT REQUESTED: $20,960,822
MATCHING FUNDS: $5,240,206 (20%)
TOTAL PROJECT COST: $26,201,028

TABLE OF CONTENTS

PARTNERS

CITY OF Springfield

City Utilities
Connecting Our Community

LOCATION

CONTACT

Leree Reese, P.E.
City of Springfield Public Works
417-864-2069
lreese@springfieldmo.gov

PROJECT OVERVIEW

I. PROJECT OVERVIEW

Proposed safety countermeasures to stymie the increasing number of pedestrian collisions along Grant Avenue

PROJECT DESCRIPTION

The Grant Avenue Connect Parkway will be Springfield's first smart urban multi-use path and will serve as the glue that brings all of the City's other major investments together. The proposed tree-lined multi-use-path along Grant Avenue will connect the City's major employers, universities, cultural destinations, and new environmental features through a 3-mile urban connector. The project includes advisory bike lanes, a roundabout, two raised intersections, three protected intersections, a grade separated crossing at Fassnight Creek, bridge enhancement, utility upgrades, fiber connectivity, additional crossing and signal timing improvements, outdoor incubator, and creek daylighting.

Funding of this project will generate new economic, educational, and environmental connections, as well serve as a testing ground for safety innovations for motorized and non motorized users of the street.

LOCATION

The proposed project is located along Grant Avenue from one of the city's major economic hubs at Sunshine Street in the south to a proposed Center City loop around Springfield's historic downtown and the IDEA Commons at Park Central West to the north.[1]

1 Video: https://www.youtube.com/watch?v=VbOup-fQqk4c

I. PROJECT OVERVIEW

Southern Anchor: Grant Avenue & Sunshine Intersection, Looking South

Northern Anchor: Grant Avenue Connect Parkway, Adjacent to Outdoor Incubator, Looking West on Mill Street

I. PROJECT OVERVIEW

Fassnight Creek Bridge, Separated Bicycle & Pedestrian Lanes

Roundabout Intersection at Grant Avenue & Portland Street

I. PROJECT OVERVIEW

Grant Avenue Connect Parkway : Connecting recently completed and future funded economic development projects

CONNECTED PROJECTS

The revitalization of Springfield's historic downtown core is gaining momentum, and the area is primed for the next level of infrastructure investment.

The City of Springfield is committed to investing in the future of its downtown core and surrounding neighborhoods. The following projects demonstrate this commitment and speak to transformation currently underway:

- Jordan Valley Park, a locally-driven ecological and economic development project
- West Meadows, an open space, recreation, and educational facility
- The recently completed Route 66 Roadside Park
- Lower Jordan Creek Greenway, Fort Scott Line Rail Trail, and Fassnight Creek Greenway, three of the region's high-priority planned trails
- Brownfield Redevelopment Program, which provides funding to conduct an environmental site assessment and develop a cleanup plan for a site along the project corridor
- Major roadway project

The Grant Avenue Connect Parkway will connect all these investments to one another and serve as a major economic catalyst.

I. PROJECT OVERVIEW

Economic Connections

Economic generators along the project corridor are divided into three sections:

Northern Anchor

A proposed loop will connect Springfield's historic downtown (including the city's heart, Park Central Square), the new $4 million City Utilities Transit Center, and Missouri State University's IDEA Commons (a cutting-edge research and entrepreneurship center) with a new Outdoor Incubator space that will offer a place for the intermingling of the City's business and educational resources.[2]

Middle Corridor

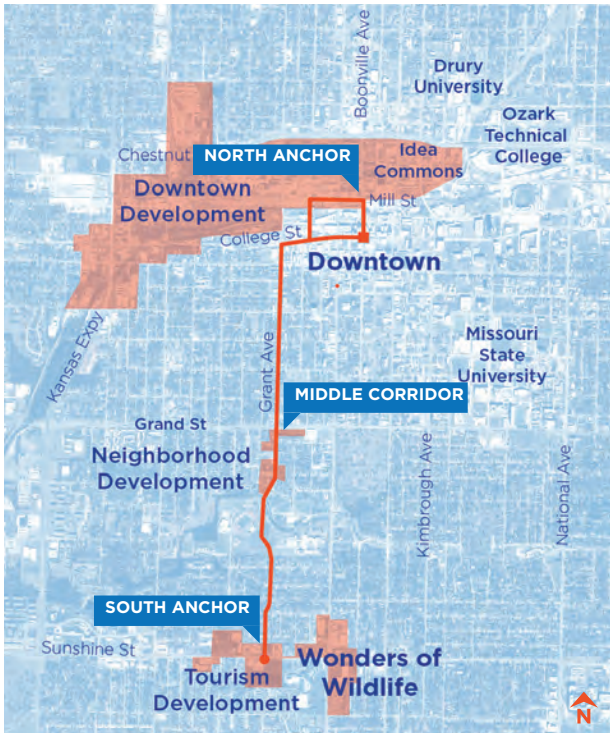
An underutilized neighborhood commercial center runs along Grant Avenue, with available parcels for redevelopment and revitalization.

Southern Anchor

Johnny Morris' Wonders of Wildlife National Museum and Aquarium (1.5 miles of exhibits and 25,000 live fish, mammals, reptiles, and birds), Bass Pro Shops, White River Conference Center, and the NRA National Sporting Arms Museum serve as major regional attractions and function as the major economic building block for the project.[3]

> *"The goal of this project is to better connect the city's world-class cultural destinations, nationally acclaimed parks and recreational amenities, and Springfield's bustling downtown district."*
>
> *- Senator Roy Blunt*

Northern Anchor: Missouri State University Idea Commons



Project Corridor & Development Potential

Southern Anchor: Johnny Morris' Wonders of Wildlife National Museum and Aquarium

2 Video: https://www.youtube.com/watch?v=OjvwedpJtNA

3 Video: https://www.youtube.com/watch?v=5Xtqm5QOyyM

I. PROJECT OVERVIEW

Roundabout intersection at Grant Avenue & Portland Street

Outdoor Incubator, Brownfield Reclamation Site

Educational Connections

The Grant Avenue Connect Parkway will also link Missouri State University's main campus, Drury University, Evangel University, Ozarks Technical Community College, one high school, two elementary schools, and a head start along the corridor. Through the creation of a single connecting path, the proposed project will help make getting to school safe and convenient while providing greater opportunities for local students to engage in their community and in ongoing research projects.

In addition, the proposed project will create a smart technology corridor, through the undergrounding of utilities and provision of free, publicly-accessible Wifi for students and entrepreneurs alike. The smart corridor will have the added benefit of being able to power real-time trail counters to track usage along Grant Avenue and to power operation, maintenance, and recreation applications.

Environmental Connections

The Grant Avenue Connect Parkway will also call attention, from an environmental standpoint, to the reclamation of an existing brownfield into the Jordan Creek Daylighting area and West Meadows Park. Connection from the project to the West Meadows lends itself to opportunities for large civic gatherings including events and concerts. The addition of trees and vegetation and the utilization of storm water best management practices will provide connections to nature and open space throughout the length of the corridor. Utilizing the Fassnight Greenway as a grade separated crossing under Grant Avenue leads users through an urban meadow along Fassnight Creek.

I. PROJECT OVERVIEW

Safety Innovations

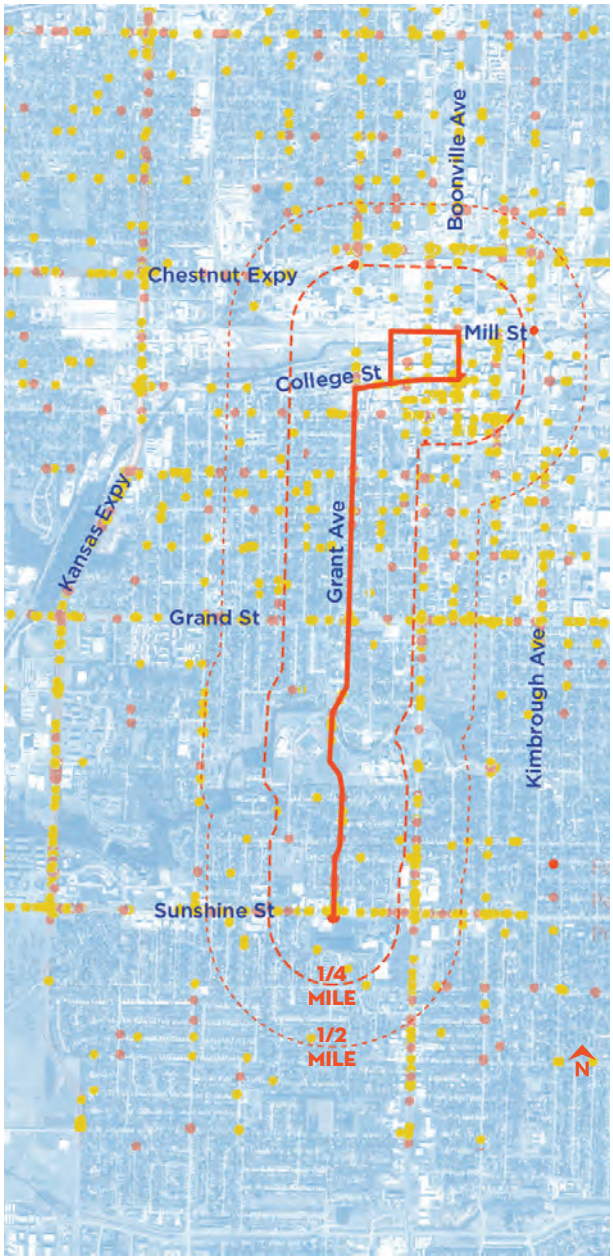
Finally, the project's proposed series of integrated and connected safety measures will help eliminate an alarming trend of increased pedestrian collisions while providing a unique set of context sensitive countermeasures and innovative treatments.

The roundabout will include a focus on traffic flow and safety enhancements for both motor vehicles and non-motorized users of the corridor including pedestrian refuge islands, signage, and high-visibility crosswalks so that young students can cross safely to Portland Elementary. Raised Intersections will help prioritize pedestrian and bicycle connections to the new CU Transit Center and the City's historic downtown commercial area.

An advisory bike lane will prioritize bicycles in mixed bicycle lanes with a central vehicular travel lane on College Street from Main Avenue to Park Central and preserve infrastructure investment by the City in the downtown core.

An enhanced bridge will create physically-separated space for motorists, pedestrians, and bicyclists to cross over the Fassnight Creek to the Fassnight Greenway, Parkview High School, Pool, Park, and Skatepark while providing needed maintenance to the structure.

Three protected intersections will be the first of their kind in the region, helping to improve intersection safety conditions while providing maximum efficiency and safety for all modes of travel. These intersection treatments will reduce curve radii and narrow pedestrian crossings with bump outs, channelization, and high-visibility crosswalks. Trail counters will increase the operational understanding of the innovative treatments and will provide data to measure the improvements' effectiveness.



Collision Mapping ● *Property* ● *Personal Injury* ● *Fatality*

I. PROJECT OVERVIEW

ESTIMATE, GRANT FUNDS & SOURCES OF MATCH

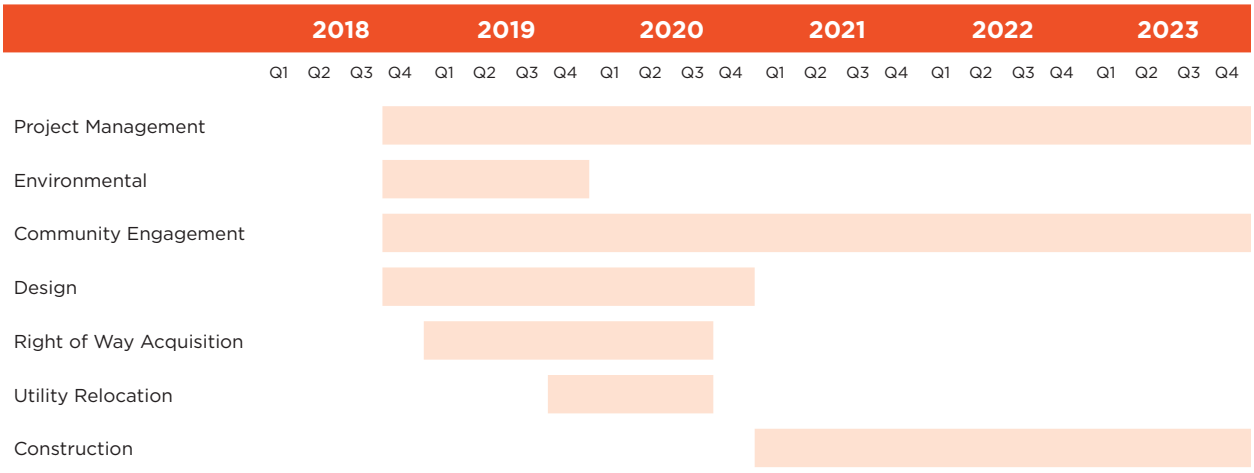
Project Cost

The total cost to construct the Grant Avenue Connector Parkway is $26,201,028 including the right of way. Detailed cost estimates for the project are included in the appendices. The City Utilities will provide $1,000,000 of match towards burying the utilities. The remainder of the 20% match will be provided by the City of Springfield ($4,240,206). Pre-construction costs and any additional right-of-way costs will be borne by the City of Springfield and its partners.

Evidence of Funding Available

The City of Springfield is committed to covering the project funding match and has funds that could be made available to cover any increases in project costs that may arise. In addition, the City has the ability set aside approximately $57,000 annually for maintenance related issues.

PROJECT SCHEDULE



	2018	2019	2020	2021	2022	2023
Project Management - 5%	$30,000	$120,000	$85,000	$354,668	$354,668	$354,668
Environmental - < 1%	$10,000	$70,000				
Community Engagement - < 1%	$8,000	$34,000	$26,000			
Design - 6%	$40,000	$850,000	$750,000			
Right of Way Acquisition - 18%		$2,033,000	$2,748,000			
Utility Relocation - 19%		$1,266,668	$3,733,331			
Construction- 51%				$4,444,668	$4,444,668	$4,444,668
Total $24,701,005.00	**$88,000**	**$4,372,668**	**$7,342,331**	**$4,799,336**	**$4,799,336**	**$4,799,336**

I. PROJECT OVERVIEW

PROJECT ESTIMATE

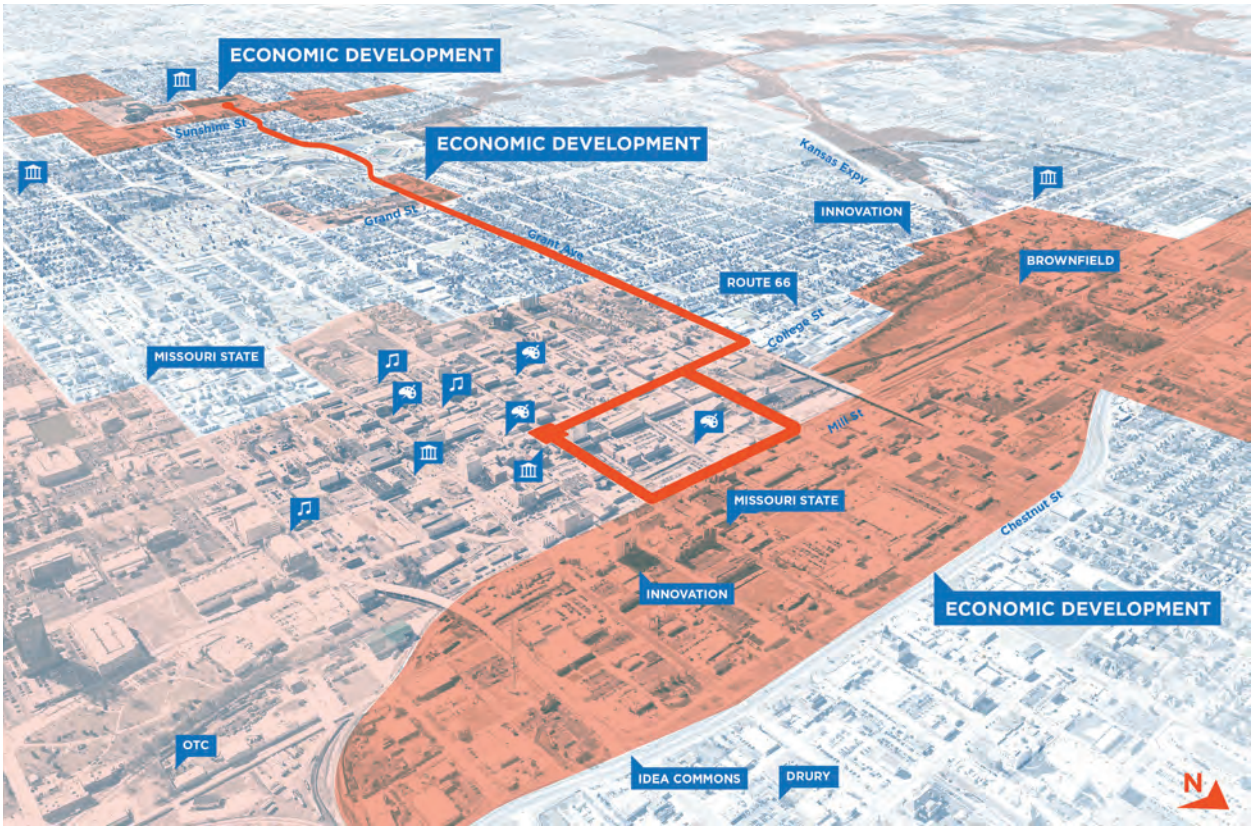
Segment Name	Segment Length (MI)	Subtotal	Contingency (15%)	Segment Total
Grant Avenue Connect Parkway (includes Main, Mill and Boonville) - Sunshine St to Square	2.78	$11,073,163	$1,660,975	$12,734,138
Architectural Bridge Improvements to Exist. Grant Structure over Fassnight Creek		$250,000	$62,500	$312,500
Route 66 - Connection from Main to Square	0.26	$249,890	$37,500	$287,390
Right of Way				$4,700,000
Utilities - Underground OH Electric and Add Fiber and Wi-Fi along Trail				$5,000,000
Construction Engineering		$1,064,000		$1,064,000
Engineering		$2,103,000		$2,103,000
Totals	**3.03**	**$14,740,053**	**$1,760,975**	**$26,201,028**
Matching Funds				
City Utilities (Local Funds for Utility Relocations)				$1,000,000
City of Springfield MO (Remainder of 20% Match of local funds)				$4,240,206
Total				**$5,240,206**
Federal Funds Requested				**$20,960,822**

MoDOT will work with the city to program and administer the federal funds and local match to successfully meet all state and federal requirements throughout the project." - District Engineer, Travis Koestner, P.E. MoDOT

- District Engineer,
Travis Koestner, P.E. MoDOT

II

MERIT CRITERIA



ECONOMIC COMPETITIVENESS

Challenges

Often heralded as the state's economic engine, Springfield has had difficulty attracting workers to its once thriving manufacturing industry. The median annual income of households in Springfield is $33,769, which is far below the state ($49,593) and national ($55,322) averages.[1] Approximately 25% of the city's population lives below the poverty line, including 28 percent of children, despite having a similar labor force participation rate as the country as a whole (62% and 64% respectively).[1] In fact, companies are finding it difficult to find and attract new workers to the region to meet the existing demand for jobs.[2]

1 American Community Survey, 2012-2016

2 Springfield Community Focus. 2017. https://goo.gl/CnP-Dws

II. MERIT CRITERIA

"We had good-paying jobs once, but the loss of many Frisco jobs and major employers at some of the manufacturing plants that closed, wages have gone down for many of the jobs available now."

- Survey Respondent via Padlet
Missouri State University

Benefits

The Grant Avenue Connect Parkway will contribute to the economic competitiveness of the region by increasing access to employment opportunities, helping to revitalize neighborhoods and stimulate development, and by creating and preserving jobs. Currently, Springfield residents spend 26% of their income on transportation or about $8,540 per year on auto ownership alone.[3] A continuous multi-use path that is integrated into the City's existing transportation network will provide low-cost and reliable access to employment centers (97,170 existing jobs in the project study area), educational facilities (36 k-12 schools and 4 higher education institutions), everyday needs (healthcare, food, and shopping), and the nine City Utility Transit routes that traverse the project alignment.

The project will also help encourage local university students to remain in the area and attract other young, skilled workers. A growing body of evidence shows that businesses are locating in downtown districts that are accessible by foot, bike, and transit to meet the needs and demands of a younger workforce whose car-ownership rates have dropped compared to previous generations.[4]

3 Center for Neighborhood Technology. Housing + Transportation Index. htaindex.cnt.org

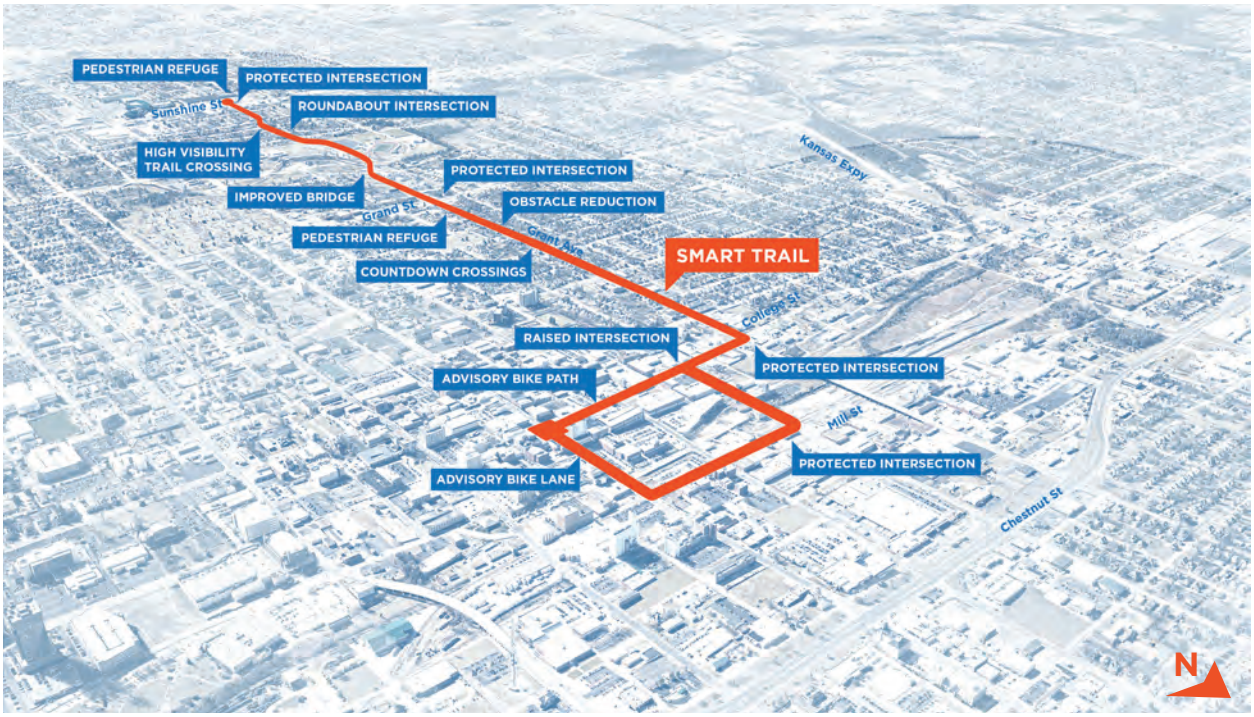
4 Smart Growth America. Core Values: Why American

Improved walking, signal timing, and streetscape conditions in Washington, D.C.'s Barracks Row helped attract 44 new businesses and 200 new jobs.[5]

Increasing the land value of the underutilized and abandoned properties that surround the corridor will help increase the likelihood that they will be converted to more economically productive uses. A 2014 study of Indianapolis' eight-mile Cultural Trail found that the values of properties within a block of new infrastructure project increased 148 percent.[6] A similar impact on the Grant Avenue corridor would serve as a major step in revitalizing the city.

5 NRPA. Active Transportation and Parks and Recreation. https://goo.gl/wcc3qj

6 Urban Land Institute. Active Transportation and Real Estate. https://goo.gl/XHfCHP



Grant Avenue Connect Parkway

SAFETY

Challenges

Pedestrian safety issues remain a major issue in Missouri. The Show Me State is one of 16 focus states FHWA identified as having high numbers of pedestrian fatalities.[1] Between 2008 and 2015, there has been an increasing trend in the rate of pedestrians injured and killed in traffic crashes across the state,[2] and the state's rate of pedestrian fatalities surpasses the national average (1.71 and 1.50 per 100,000 population, respectively).[3]

In the City of Springfield, 16% of all fatal crashes were pedestrian-related[4], and there has been an alarming trend upwards. Over the last five years of available data, the Grant Avenue project study area experienced 337 non-alcohol-involved crashes with 23 involving people walking or bicycling.[5] The City of Springfield has implemented policies to improve pedestrian safety[6] but must implement infrastructure changes to be able to improve roadway conditions for all users.

1 FHWA. Safety: Pedestrian and Bicycle Safety Focus States and Cities. https://goo.gl/MT2kyD

2 NHTS Pedestrian Traffic Safety Fact Sheets for year 2008 to 2015)

3 NHTSA. Traffic Safety Facts 2015

4 City of Springfield. Street and Intersection Pedestrian Safety Study. 2017. https://goo.gl/iTRvDa

5 Missouri State Highway Patrol STARTS Reporting Database, 2013-2017.

6 City of Springfield. Pedestrian Safety Ordinance. https://goo.gl/f1iDg8

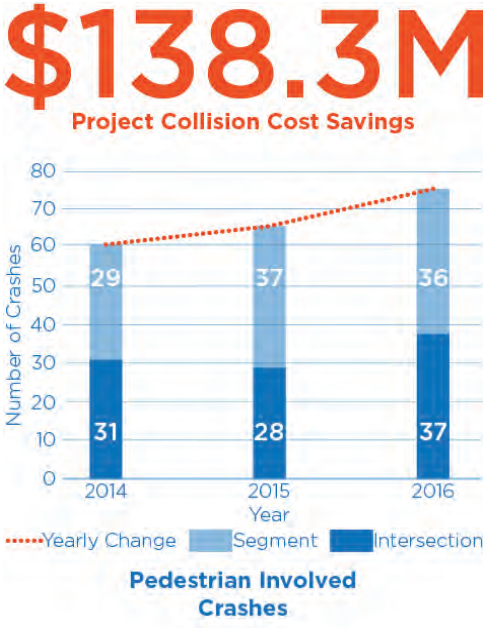
II. MERIT CRITERIA

Fassnight Bridge, Protected Multi-use-path for Pedestrians & Bicycles

Benefits

The Grant Avenue Connect Parkway is designed specifically to improve safety conditions for all users of the roadway. A smart multi-use path will separate motor vehicles and pedestrian/bicyclist right of way. A innovative series of protected intersections, a roundabout, pedestrian refuge islands, and leading pedestrian intervals will continue the protection provided by the pathway through the corridor's intersections.

These improvements are estimated to prevent 573 total collisions over the 20-year analysis window, including nearly 8 fatalities, and provide over $145 million in total collision reduction benefits.



II. MERIT CRITERIA

Grant Avenue Connect Parkway *New Civic Center*

Planned Development

INNOVATION

In addition to the series of connected safety countermeasures discussed on the previous page, the Grant Avenue Connect Parkway's construction activity will allow for the concurrent installation of fiber optic cables. This will allow for the creation of free, publicly-accessible WiFi along the corridor, enabling the ability of the City to track in real-time the impacts of the project through electronic counting devices and maintenance/operation applications.

Outdoor Incubator, WiFI enabled Public Collaboration Space

II. MERIT CRITERIA

Grant Avenue Connect Parkway

Ecological Restoration

ENVIRONMENTAL PROTECTION

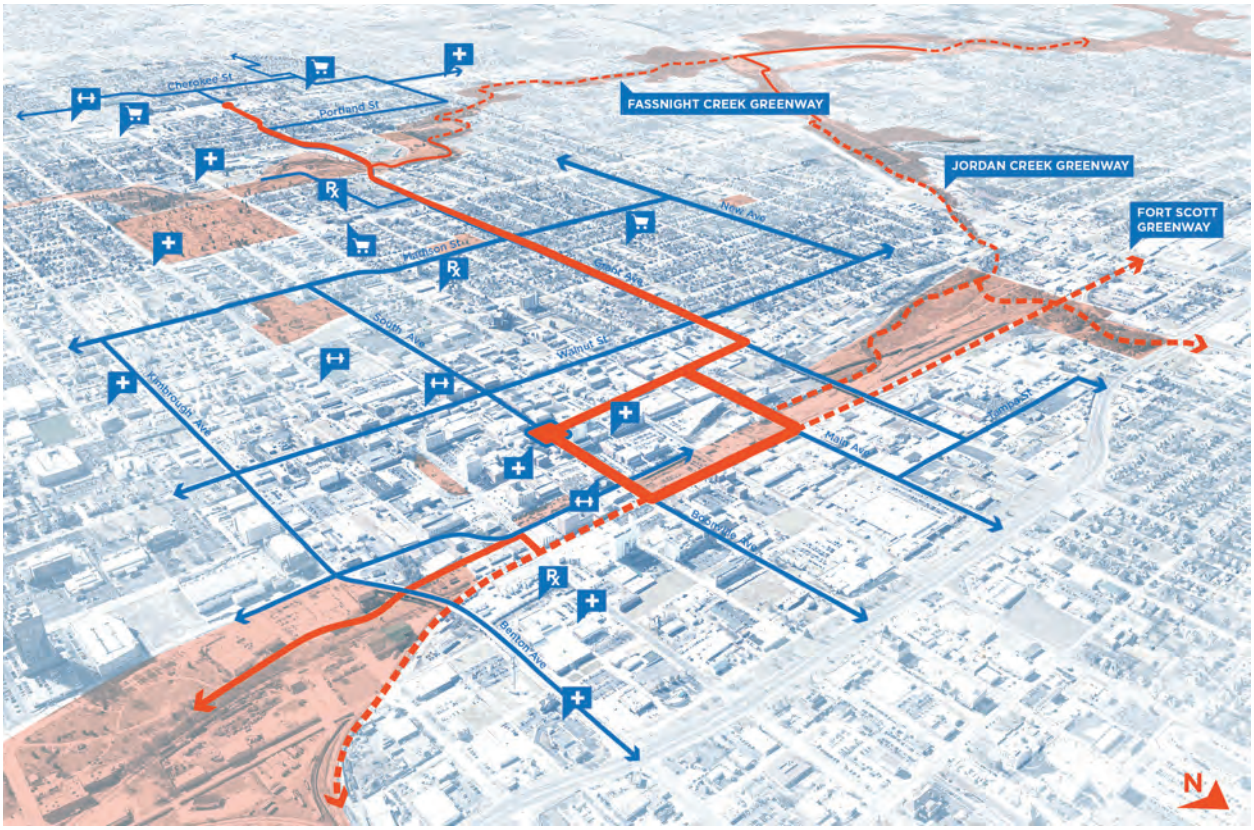
Challenges

There are approximately 26 brownfield sites within 250 feet of the project alignment. While some sites have been targeted for remediation, like the Jordan Valley West Meadows sites, others must still be addressed. Another challenge for Springfield is limiting the vehicular emissions. Currently, transportation is the largest source of combined Nitrous Oxide and Volatile Organic Compound emissions in Greene County (46.2%) and a major contributor to fine particulate matter emissions.[1]

Benefits

Implementation of the Grant Avenue Connect Parkway will help drive economic interest in the study area, making assessment and future clean-up of the surrounding brownfield sites possible. When infrastructure is provided for walking, bicycling, and public transit, more trips can be safely made using these modes rather than driving, which results in an overall reduction in air pollution. The proposed project will reduce vehicle-miles traveled by an estimated 115.3 million miles over 20 years. This will result in large emissions reduction benefits by preventing 49,000 metric tons of greenhouse gas and criteria pollutants from entering the atmosphere, helping to mitigate $3.7 million in environmental damage over the life of the project.

1 Ozarks Clean Air Alliance. Clean Air Action Plan for Southwest Missouri. 2017. htttps://bit.ly/2LocYqW



QUALITY OF LIFE

Challenges

According to *The State of Obesity: Better Policies for a Healthier America*, Missouri's adult obesity rate has steadily increased from 11.3% in 1990 to 21.4% in 2000 to 31.7% today.[1] A leading contributor to obesity is a lack of physical activity, and being able to incorporate exercise into a daily routine is vital to meeting the Centers for Disease Control and Prevention's standards of weekly physical activity. However, just 4% of Springfield residents currently walk or bicycle to work[2] and 25% report no leisure-time physical activity.[3]

1 The State of Obesity. htttps://stateofobesity.org/states/mo

2 American Community Survey (2012-2016)

3 County Health Rankings. https://bit.ly/2msek6d

II. MERIT CRITERIA

Benefits

Implementation of the Grant Avenue Connect Parkway will help increase the number of mobility choices available to Springfield residents, encourage greater physical activity levels, expand access and improve connectivity to jobs, healthcare, and other critical destinations.

The Parkway will link together the planned network of multi-modal facilities and provide access to transit centers and increase transportation choices. The connected corridor will span different land use contexts and connect some of the City's most historic and culturally significant areas, as well as schools and businesses.

Increased access to existing jobs, healthcare, recreation facilities, and transit stops/stations along the corridor will help encourage greater physical activity levels among residents. Implementation of the project is estimated to help reduce healthcare costs among residents in the study area by $57.9 million over a 20-year period.

STATE OF GOOD REPAIR

Enhancements over Fassnight Creek will help reduce long-term maintenance costs for the City of Springfield by creating space for bicycle and pedestrian trips and, thereby, reducing the number of motor vehicle trips that will use the bridge over its useful life. The Grant Avenue Connect Parkway is estimated to reduce the roadway maintenance costs by $13.5 million over a 20-year analysis period.

Missouri State University Idea Commons

Fassnight Creek Crossing, Separated Bicycle & Pedestrian Path

II. MERIT CRITERIA

"Springfield...is currently experiencing tremendous momentum and growth. The public and private sectors routinely work together toward a common vision and this project is an example of Springfield collaborating to execute a vision."

- Congressman Billy Long

PARTNERSHIPS

Springfield's City Utilities have committed to providing funding support for the project and will assist in undergrounding utilities along the project corridor. The successful implementation of the project will also rely on partnerships with statewide, regional, and local transportation and health planning groups (MoDOT, Ozarks Transportation Organization, Ozark Greenways, Missouri Bicycle and Pedestrian Federation, and Springfield Green County Park Board, and Healthy Living Alliance).

The project will also involve collaborations with local schools (Missouri State University and Springfield Public Schools), local businesses and attractions (Chamber of Commerce & SBDC, Convention & Visitors Bureau, Bass Pro Shops, Springfield Art Museum, and Mother's Brewery), and local neighborhood groups (Downtown Springfield Association, Neighborhood Advisory Council, West Central Neighborhood Association, Phelps Neighborhood Association, and Downtown SGF Community Improvement District). The partnerships will assist in engaging the community during planning, design, and implementation of the Grant Avenue Connect Parkway, and their letters of support can be found in the attachments.

City Utility Partnership: Recently Developed City Utility Transit Center on Grant Avenue Connect Parkway

III

READINESS

III. READINESS

TECHNICAL FEASIBILITY

The corridor will retain a three-lane section except at the roundabout location at Portland Street. The pathway will be 10 to 12 feet in width along the 3-mile corridor and will address connections to schools along the corridor to enhance a focus on safe routes to school.

Intersections along the corridor will be context-sensitive to the land uses and economic opportunities available. Protected intersections that allow for the path to traverse intersections will be included at Sunshine, Grand, and at College. A roundabout will included in the plan at Portland Street to improve safety conditions while maintaining efficient traffic flow. Remaining intersections along the corridor will be upgraded and will focus on accessibility and safety of all users by upgrading both traffic signal equipment and signal timing for active transportation and transit efficiencies.

Right of way acquisition is expected in this narrow corridor to allow for the multi-use path, addition of trees and stormwater BMP's, undergrounding of utilities, the addition of a fiber backbone, and public WiFi connectivity along the project. In some areas near the roundabout, the right of way will narrow to allow for the retention of access to properties. The City of Springfield is experienced at administering both design and construction

Grant Avenue & Portland Street Roundabout Intersection

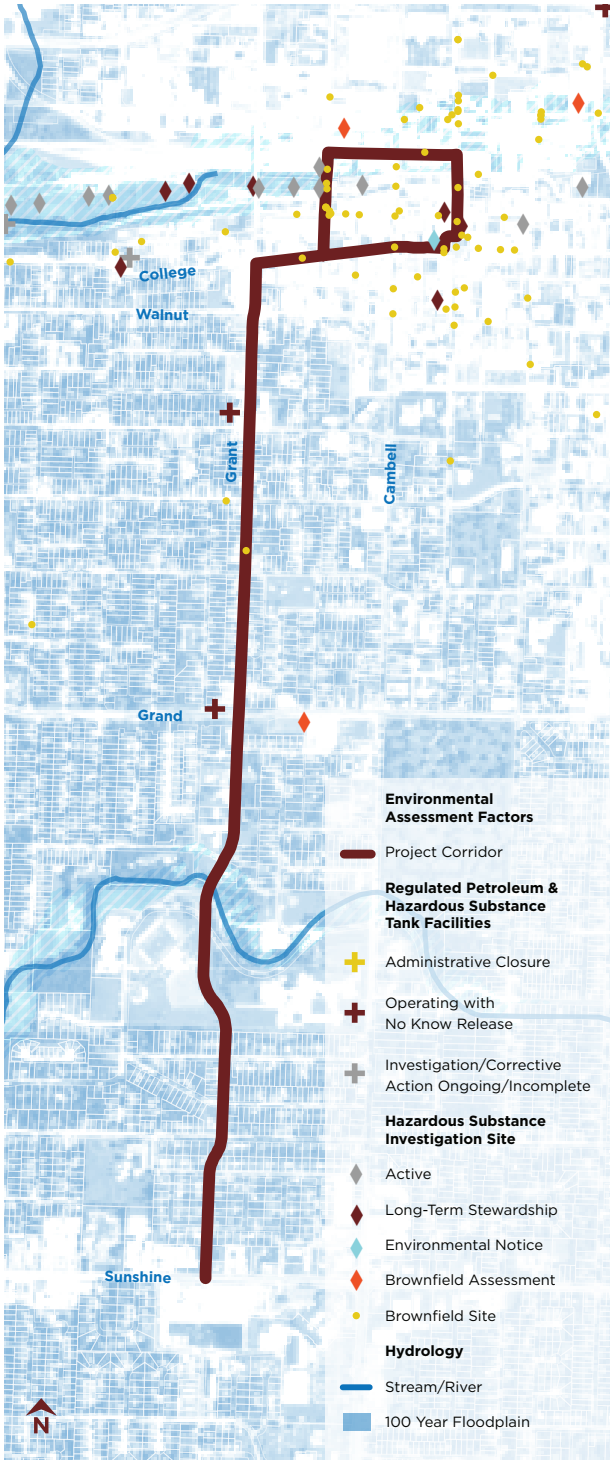
activities. Conceptual design and development activities related to the proposed pedestrian/bicycle bridge revisions and multi-modal path connector have already been performed to identify the constraints that must be satisfied during preliminary and final design activities by the design consultant. Meetings that have included right-of-way staff, City Utilities, the MPO, and MoDOT have been taking place to fine tune the conceptual design and develop a path forward for approvals and design development for the project.

PROJECT SCHEDULE

The City and its partners are ready to begin preliminary design, permitting, and construction quickly upon receipt of a BUILD Grant. Preliminary engineering, environmental assessment, and coordination with MoDOT and other project partners are already underway. The grant funds will be spent steadily and expeditiously once construction starts. As per the project schedule, all necessary pre-construction activities will be complete to allow grant funds to be obligated no later than September 30, 2020, and completion of construction in the Fall of 2023.

REQUIRED APPROVALS

The City of Springfield expects the project to require a NEPA Environmental Assessment document. This is primarily due to right of way acquisitions needed for the project. A Project Environmental Linkage (PEL) was performed for 23 greenway corridors as part of the Ozark Transportation Organization's Bicycle and Pedestrian Trail Investment Study (2017). Three corridors examined in this study and supporting PEL document intersect the Grant



PEL Map, Project Area

Avenue Connect Parkway: the Fassnight Creek Greenway, Jordan Creek Greenway, and Fort Scott Line Rail Trail. Environmental data and information from this study will support the environmental assessment for the project. Formal NEPA activities for the corridor will begin promptly at the award of the grant and progress for the next year. MoDOT has developed a streamlined process for allowing sponsors of projects like the City of Springfield to progress through the NEPA process efficiently to allow for design progress to obligate funds.

As noted, preliminary Environmental Review information of the project has been completed to identify potential environmental issues associated with the proposed project and to help determine the class of action for this project pursuant to NEPA.

State & Local Approval

This project will link three (3) priority corridors identified by OTO, the local MPO, in their 2017 Priority Trail Investment Study. This project has been identified by project partners as a key addition to the priority trail network.

The project has also received support from appropriate members of Missouri's Congressional delegation as noted in the letters of support.

Transportation Improvement Program

While this project is seeking funding through the BUILD Program, the three other corridors that the project will link will be funded through federal and local funds provided by the City of Springfield, Greene County, private developers, the regional transportation planning organization, and MoDOT. The City of Springfield has defined the Jordan Creek Greenway and Fassnight Greenway as priorities, and work in the corridors has already begun, including a Regional Trails Grant for Jordan Creek through the West Meadows, as well as daylighting of the Fassnight corridor and construction of the Fassnight crossing of Grant Avenue to which this project will directly connect.

RISK MITIGATION/FINANCIAL FEASIBILITY

Preliminary coordination with MoDOT, OTO, and other stakeholders has already begun in order to mitigate any risks to the project schedule and scope. Conceptual design has been performed such that the proposed smart multi-use path alignment is well defined and the right of way necessary to build the project has been identified at the concept level of detail. Care has been taken to design this project such that the College Avenue project that is under construction at Grant Avenue and the existing roadways will be positively impacted by the pathway and intersection improvements. The project cost estimates will be updated at each plan submittal (30%, 65%, 90% & 100%) during the final design process to ensure the construction budget is in line with the project funding. The City of Springfield understands it will be responsible for all cost overruns. The City Utilities will cover $1 million of the undergrounding costs, and the City of Springfield is committed to covering the remainder of the 20% project funding match and has contingency reserves sufficient to cover any increases in project costs that may arise.

III. READINESS

Potential Risk & Impact		Response
Unexpected environmental or site conditions could remain undetected until construction, with potential to delay costs and schedule.	Mitigate	Preliminary site assessments and NEPA documentation will be completed prior to initiation of construction activities.
Locations of subsurface utilities, both public and private, are not currently known with a high degree of certainty. Current information suggests that there is potential for some conflicts with utilities, requiring relocations. Potential to increase costs and delay schedule.	Mitigate	City Utilities is a one-stop shop for utilities in Springfield and their involvement and commitment will for the identification of utilities and coordinate relocation as early as possible during design. Perform soft digs where appropriate during design phase to reduce uncertainty.
Construction costs could escalate beyond anticipated and bids could come in over estimated costs.	Mitigate	Monitor bid prices and trends.
Consultant design could contain errors and omissions.	Mitigate	Have third party review of designs at appropriate milestones.
Consultant design may not meet MoDOT expectations. Revisions to design could delay schedule and increase costs.	Mitigate	Conduct plan reviews with MoDOT at milestones during design.
Ownership of private property where right-of-way or easements are needed could change, potentially delaying acquisition and increasing costs.	Mitigate	Maintain close communication with property owners and developers and acquire easements and properties as early as possible.
Obtaining permits from the various agencies could take longer than anticipated. Potential to delay schedule and increase project costs.	Mitigate	Begin coordination with agencies at outset and continue through final design
Inclement weather could delay construction activities.	Accept	Accept risk and set project schedule to account for potential weather delays.

COST SHARE

The City of Springfield has been steadily investing in its downtown infrastructure, but to truly capitalize on existing investments, the City needs outside funding support.

Activities to Maximize Non-Federal Share of the Project Funding

The City of Springfield and its partners are committed to providing 20% matching funds to implementation of the proposed project.

Fiscal Constraints that Affect the Applicant's Ability to Use Non-Federal Contributions

There are no fiscal constraints that affect the City of Springfield's ability to use non-federal contributions.

Plan to Address the Full Life-Cycle Costs Associated with the Project

All of the maintaining agencies, including the City of Springfield and Springfield's City Utilities, have allocated funds to cover the maintenance costs associated with this project.

IV

BENEFIT-COST ANALYSIS

IV. Benefit-Cost Analysis

SUMMARY

The 20-year benefit-cost analysis for the Grant Avenue Connect Parkway shows an internal rate of return between 17.8% and 18.4%, with a net present value between $70.1 million and $77.1 million at a 7% real discount rate. This means that the estimated benefits of the project are more than three times the initial investment between 2024 and 2043.

The estimate is supported by extensive local demographic data and expands greatly on the benefit-cost analysis method proposed by NCHRP Report 552: Guidelines for Analysis of Investments in Bicycle Facilities. Capitalizing on research published since NCHRP Report 552 was released in 2006, this project's benefit-cost analysis considers different impact areas for bicycling and walking activity, and evaluates the impact of utilitarian and schools trips in addition to commute trips. The calculation also considers local travel patterns, trip distances, and public health data to create a more complete picture of the impacts of mode shift towards bicycling and walking that will result from the BUILD-funded project.

While the simpler NCHRP-endorsed method includes sizable recreation benefits that often make up 90 percent of the calculated value of bicycle projects, the Grant Avenue Connect Parkway benefit-cost analysis has been careful to omit recreational benefits from its calculation so that the project can be evaluated solely on its merits as a transportation facility in accordance with USDOT grant selection guidelines.

DATA

Summary of Return on Investment

- Net Present Value: **$70.1-$77.1 million**
- Internal Rate of Return: **17.8%-18.4%**
- Benefit-Cost Ratio: **4.2:1.0 - 4.5:1.0**

Benefits Over 20-year Window

- Economic Competitiveness
  - Household Transportation Cost Savings: **$29.8-37.1 million**
  - Traffic Congestion Cost Savings: $4.4-$5.5 million
  - Total Temporary Jobs Created: 300
- Safety
  - Collision Cost Savings: **$138.3 million**
- Environmentally Protection
  - Greenhouse Gases/Criteria Pollutants Reduced: **37,000-49,000 metric tons**
  - Emissions Cost Savings: $2.8 million - $3.7 million
- Quality of Life
  - Healthcare Cost Savings of Newly Active Persons: **$1,700 - $2,000**
- State of Good Repair
  - Non-recreational Bike/Walk Trips: **91.3-125.6 million**
  - Vehicle-Miles Traveled Reduced: **87.6-115.3 million**
  - Roadway Maintenance Cost Savings: $10.9-$13.5 million

Un-discounted Costs

- Capital Costs: $26.2 million
- Maintenance Costs: $57,000/year
- Total Costs 20-year period: $1.1 million